REMARKS

Claims 24-29 and 33-76 were pending in the application. By this paper, Claims 33, 42, 51, 60, 69 and 74 have been amended, Claims 75-76 cancelled, and new Claims 77-79 added. Therefore, Claims 24-29, 33-74, and 77-79 are presented for examination herein.

Correction of Errors

Applicant thanks the Examiner for pointing out the various deficiencies in Applicant's prior amendment (filed August 15, 2003) relating to delineation of amendments in accordance with 37 CFR §1.121. By this paper, Applicant has corrected these deficiencies, and hereby submits the claims as presented herein for Examination. Per Applicant's discussion with the Examiner on Nov. 7, 2003, Applicant understands that the prior (August 15, 2003) amendment was not entered; accordingly, Applicant requests that the present amendments be entered anew (i.e., in place of those of the August 15, 2003 amendment).

Rejections under 35 U.S.C. §103(a)

With respect to the Examiner's rejection of Claim 24 under 35 U.S.C. §103(a) over the combination of U.S. Patent No. 6,006,022 to Rhim (hereinafter "Rhim"), and U.S. Patent No. 6,182,206 to Baxter (hereinafter "Baxter"), Applicant notes that Rhim and Baxter (as well as the other art of record) in no way teaches or suggests the method as recited in amended Claim 24 as presented herein.

The combination of Rhim and Baxter would not produce the functionality of Applicant's invention; i.e., a method of programming a programmable system comprising a fixed processor portion and a user programmable address arithmetic unit, using first and second programming languages, the first programming language being used to configure the arithmetic unit, the second programming language comprising a fixed set instructions that make use of a fixed set of addressing modes, at least one of the addressing modes comprising a user defined addressing mode, and wherein an instruction from the fixed instruction set invokes the user defined addressing mode.

While Rhim arguably teaches a system with a fixed portion and a programmable address decoding portion (e.g., user-defined address mapping function programmed into a PAL), Rhim fails to teach the functionality described in the paragraph above. This is explicitly acknowledged by the Examiner on page 3 of the office action in his §103 rejection of Claim 24.

Baxter teaches a reconfigurable architecture for use in programming a programmable device like a programmable logic array or a gate array. However, Applicant directs the Examiner's attention to Col 2, line 19 through Col. 4, line 67 of Baxter, wherein Baxter specifically teaches away from the concept of achieving better performance by coupling a fixed processor portion to a reconfigurable accelerator portion (such as a PAAU); Baxter distinguishes over this concept as being not suited to solving the problems his invention purportedly solves.

Also, because Baxter's invention is to be implemented in a programmable logic device, he teaches away from the concept of using a fixed instruction set having instructions with user defined addressing modes. Baxter teaches different instruction sets used for each different type of operation to be performed. See, *inter alia*, Col. 5, line 63 through Col. 6, line 22 of Baxter, and note that each time the hardware is reconfigured, a different instruction set (ISA) is used. See also Col. 8, lines 23-28, Col. 12, lines 40-50 of Baxter. These passages indicate that reconfiguration is used to change between different instruction sets (ISA's) and each different ISA has its own dedicated set of addressing modes.

Hence, because Baxter clearly teaches away from the Applicant's invention, the combination of Baxter and Rhim cannot render the Applicant's claimed invention obvious, since there can be no reasonable combination of these references to produce the invention of Claim 24 as presented herein. Accordingly, Applicant respectfully submits that Claim 24 as amended herein overcomes the Examiner's §103(a) rejection, and is in condition for allowance.

Claims 33, 42, 51, 60, and 74 have been amended to have similar limitations, and for generally the similar reasons as stated above, none of these independent claims are taught or suggested by Rhim, Baxter, or any combination thereof. Therefore, Applicant respectfully submits that each of Claims 33, 42, 51, 60, and 74 as amended herein overcome the Examiner's §103(a) rejection, and are in condition for allowance.

By this paper, Claim 69 has been amended to add the auto-update specific user-defined addressing mode as disclosed in the Applicant's patent application. It is asserted by the Examiner (see pp. 11-12 of the Office Action) that Rhim teaches certain aspects of the invention of Claim 69, but must be combined with Baxter because Rhim fails to teach or suggest the recited arithmetic unit and the user-defined addressing mode. However, as discussed above with respect to Claim 24, Baxter does not teach these concepts either. Rather, Baxter teaches a programmable logic device architecture where completely different instruction sets are configured, and each instruction set has its own set of associated addressing modes. Also, Baxter does not teach or suggest a user-defined auto-update addressing mode that is implemented to regenerate an observed address sequence upon successive executions of instructions involving the user-defined auto-update addressing mode. Hence neither Rhim, Baxter, nor any combination thereof, teach or suggest the limitations of the Applicant's invention of Claim 69. Therefore, Applicant respectfully submits that amended Claim 69 also overcomes the Examiner's §103(a) rejection, and is in condition for allowance.

In paragraph 4 (p. 14) of the Office Action, the Examiner rejected Claims 25, 35-37, 44-46, 53-55, 62-64 and 70-73 in light of Rhim, Baxter, and Liao ("Storage Assignment to Decrease Code Size - SIGPLAN'95). Applicant respectfully submits that Liao teaches away from Applicant's invention, because Liao assumes throughout a fixed addressing unit that is incapable of being defined to implement a user-defined addressing mode. Liao seeks software solutions to generate efficient compiled code given the hardware constraint of an addressing unit that can only perform auto-increment and auto-decrement. One following this teaching would move in the opposite direction to that of the Applicant's invention; that is, they would seek to use the best possible software solution given a fixed, non-programmable addressing unit that did not supply user-defined addressing modes. This is also true in general of the Sudarsanam, Liao and Devedas reference cited by the examiner. Hence the Applicant respectfully asserts that the Examiner's combination of references involving the Liao and the Sudarsanam, Liao and Devedas references are improper, and would not produce the claimed invention(s).

Other Amendments and New Claims

Claims 33, 42, 51, 60, 69 and 74 have been amended to correct minor deficiencies and more particularly point out Applicant's invention.

New independent Claim 77 and dependent Claim 78 are in the same elected species as the independent claims discussed above, but also recite limitations relating generally to the SAM (set address mode) instruction recited in the Applicant's disclosure. Claims 77-78 are neither taught nor suggested by any of the prior art of record. Therefore, Applicant respectfully submits that Claims 77-78 are in condition for allowance as well.

New independent Claim 79 recites limitations relating to the specific auto-update user-defined addressing. Claims 79 is neither taught nor suggested by any of the prior art of record. Therefore, Applicant respectfully submits that Claim 79 is also in condition for allowance.

Summary

Claims 33-74, and 77-79 were presented for examination herein. Claims 33, 42, 51, 60, 69 and 74 were amended in order to overcome the Examiner's rejection under 35 U.S.C. §103, and accordingly are now in condition for allowance.

Claims 77-79 are new claims that recite other limitations which distinguish over the art of record.

Applicant specifically reserves the right to prosecute claims of differing and broader scope than those presented herein in a continuation or divisional application.

Applicant notes that any amendments made by this paper which are not specifically discussed herein are made solely for the purpose of more clearly and particularly pointing out and claiming Applicant's invention.

Lastly, any claim cancellations or additions made herein are made solely for the purposes of more clearly and particularly describing and claiming the invention and responding to the aforementioned Office Action, and not for purposes of overcoming art or for patentability. The Examiner should infer no (i) adoption of a position with respect to patentability, (ii) change in the Applicants' position with respect to any claim or subject matter of the invention, or (iii)

acquiescence in any way to any position taken by the Examiner, based on such cancellations or additions.

If the Examiner has any questions or comments which may be resolved over the telephone, he is requested to call the undersigned at (858) 675-1670.

Respectfully submitted,

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